



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/589,669

08/16/2006

Masahide Miura

129110

9963

25944 7590 05/19/2010
OLIFF & BERRIDGE, PLC
P.O. BOX 320850
ALEXANDRIA, VA 22320-4850

EXAMINER

ZIMMER, ANTHONY J

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

05/19/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com
jarmstrong@oliff.com

Office Action Summary	Application No. 10/589,669	Applicant(s) MIURA, MASAhide	
	Examiner ANTHONY J. ZIMMER	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6 and 9-15 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 12-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6, 10-11, and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 12/1/2009 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language (KR 10-0295168 B1 and DE 9403581 U1). Further, the John Dalton Wright reference has also not been considered because the pages submitted are blank. They have been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6, 10-11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura '975.

In regard to claim 6, Kimura teaches impregnating a cerium nitrate onto a zirconium powder followed by calcination. See Example 2. Kimura teaches that part of the cerium solves (dissolves) into the zirconia thus forming a solid solution in the core part. Thus, the solid solution and zirconia are seen as the core and the ceria layer is seen as the surface layer. This meets the limitations requiring that the molar fraction of cerium and zirconium in a ceria/zirconia solid solution in the core part is greater than in the surface layer, and that the molar fraction of ceria in the surface layer (100%) is higher than the molar fraction of ceria in the core. Kimura teaches that platinum can be supported. See [0041].

In regard to claim 10, the powder of zirconia particles are considered primary particles or subunits of which are considered primary particles and the ceria particles produced by impregnation and calcination are considered primary particles.

In regard to claim 11, Kimura teaches that at least one of neodymium and cerium can be used (thus both rare earths can be used). See [0035].

In regard to claim 15, Kimura teaches transitional metal catalyst loadings of 2-10% by weight ([0038]) and 0.01-20% of noble metals ([0041]) thus this forms an overlapping range with the instant claim where the support forms 70%-97.99%. Without the catalyst metals, as in example 2, the cerium and zirconium represent 100% of the particle.

Response to Arguments

Applicant's arguments filed 2/11/2010 have been fully considered but they are not persuasive.

Applicant argues that there is no indication of the percentage of cerium that forms a solid solution with zirconia and thus there is no indication of how much cerium would be left over for a surface layer. Applicant further argues that Kimura does not teach a surface layer of ceria.

However, Kimura teaches impregnating zirconia with a cerium salt thus “loading Ce thereon” (in the form of ceria) and also “a part” of the cerium forming a solid solution with zirconia. See Example 2, [0047]. Thus the surface layer loaded thereon would have 100% ceria as compared to the core part in which the ceria forms a composite oxide with zirconia and thus comprises less of the core than of the surface. Applicant has not provided evidence indicating otherwise.

Applicant argues that ceria is not the only metal in the surface layer.

However, in example 2, no other transition metal is loaded on the produced ceria-zirconia particle. Furthermore the transition metal is disclosed as forming a separate layer, and is produced in a separate step from adding ceria. Thus the transition metal layer is not considered part of the ceria layer. See [0037]. Even when the transition metal becomes part of the support by forming a solid solution therewith, any decrease in ceria weight percentage of the surface layer caused by the introduction of the transition metal would be compensated for by a corresponding decrease in ceria weight percentage in the core part caused by addition of the transition metal.

Applicant further argues that Kimura teaches that the surface layer includes titania or zeolite powder.

However, the layer referred to is not a layer formed on the stabilized zirconia support and is instead part of a catalyst layer when the powder (titania or zeolite) is mixed with the stabilized zirconia having appropriate catalyst components thereon. See claim 11 of Kimura for disambiguation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. ZIMMER whose telephone number is (571)270-3591. The examiner can normally be reached on Monday - Friday 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ajz

/Anthony J Zimmer/
Examiner, Art Unit 1793

/Steven Bos/
Primary Examiner, Art Unit 1793